

Remarks/Arguments

A. Pending Claims

Claims 7-8, 10-16, and 18-35 are currently pending. Claims 7, 18, 20, 25, and 32 have been amended. Claims 18, 20, and 25 have been amended to clarify the claims. Claims 9 and 17 have been cancelled without prejudice. Claims 34 and 35 are new.

B. Claim Objections

The Examiner objected to the claims because “each claim must be the object of a sentence starting with ‘I (or we) claim’, ‘The invention claimed is’ (or the equivalent).” Applicant respectfully disagrees that the claims lack a proper introduction. Page 15, line 2 of the specification states: “What is claimed is:”. The claims are clearly the object of this sentence. Applicant requests removal of the claim objections.

C. The Claims Are Not Indefinite Pursuant to 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 7-33 under 35 U.S.C. § 112, second paragraph as indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner states, “It is unclear what the structure of the catalyst itself because claims lack the structure of each of these compounds used.” Applicant respectfully disagrees that the claims are indefinite.

Claim 7 is directed to the catalyst produced by “preparing a magnesium compound... preparing a second solution ... and reacting the second solution” The particular structure of the catalyst is not claimed. Claim 7 is claiming the catalyst produced using the combination of features detailed in the claim. Applicant is not claiming and is not required to detail the structure of the resulting catalyst or of the compounds used.

Claim 32 is directed to a method for producing a solid titanium catalyst. Claim 32 requires the features of: “preparing a magnesium compound solution … preparing a second solution… and reacting the second solution ….” The particular structure of the catalyst is not claimed. Applicant is not claiming a catalyst and is not required to detail the structure of the catalyst resulting from implementation of the features of the claim, or of the compounds used during implementation of the method.

Claim 33 is directed to the catalyst produced by “preparing a magnesium compound solution… preparing a second solution… and reacting the second solution....” Claim 33 is claiming the catalyst produced using the combination of features detailed in the claim. Applicant is not claiming and is not required to detail the structure of the resulting catalyst or of the compounds used.

Applicant requests removal of the indefiniteness rejection of the claims.

D. The Claims Are Patentable Over Kioka Pursuant to 35 U.S.C. §§ 102(e), 103(a)

The Examiner rejected claims 7-33 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,235,854 to Kioka et al. (hereinafter “Kioka”). Applicant respectfully disagrees that the claims are unpatentable over Kioka.

The Examiner states, “Kioka, et al. teach a titanium catalyst composition produced by contacting a magnesium compound…solubilized in alcohol…with a first titanium compound…, polybasic carboxylic acid ester…and then a second titanium compound…, a silica carrier…with organoaluminum compound.” Applicant respectfully disagrees that the claims are unpatentable over Kioka.

Claims 7, 32 and 33 each describe a combination of features, including: “preparing a second solution by reacting the magnesium compound solution with an ester compound

comprising at least one hydroxy group and a boron compound comprising at least one alkoxy group”.

Kioka appears to teach a polybasic carboxylic acid ester for the preparation of a solid titanium catalyst (see column 7, lines 57-63). The polybasic carboxylic acid esters taught by Kioka are different in structure and chemical properties from an ester compound comprising at least one hydroxy group. Kioka does not appear to teach or suggest at least the feature of “an ester compound comprising at least one hydroxy group”, in combination with the other features of claim 7, claim 32, or claim 33.

Kioka mentions boron twice. Once at column 4, line 52. Boron is mentioned a second time at column 9, line 59, where the specification mentions boron oxide. Kioka does not appear to teach or suggest at least the feature of “a boron compound comprising at least one alkoxy group”, in combination with the other features of claim 7, claim 32 or claim 33.

Additionally, Kioka does not appear to teach or suggest “preparing a second solution by reacting the magnesium compound solution with an ester compound … and a boron compound…”, in combination with the other features of claim 7, claim 32, or claim 33.

The Examiner has not shown that each of the features of the rejected claims are taught or suggested by the cited art. Applicant requests removal of the rejection of claim 7, claim 32, claim 33, and the claims dependent thereon.

The Examiner states, “[i]t would have been obvious for one of ordinary skill in the art to change the Lewis acid complex of the catalyst from a aluminum to a boron compound because they are known equivalents in the art and belong to the same group therefore will have similar chemical properties.” Applicant respectfully disagrees that the replacement of aluminum compounds for boron compounds would be obvious to one of ordinary skill in the art with respect to the present claims.

In Kioka, the organic aluminum compound is used as a co-catalyst component in addition to the main catalyst in the polymerization of an olefin. In the claims of the present application, boron is used in the preparation of the catalyst, not as a co-catalyst. Kioka appears to teach different use, purpose, and point of addition of the organic aluminum compound. Applicant submits that since Kioka teaches a different use, purpose, and point of addition of the organic aluminum compound, the use of Kioka's organic aluminum compounds to reject boron compounds of the present claims as obvious is not proper. Applicant requests removal of the obviousness rejections of the claims.

E. Double Patenting Rejections

The Examiner provisionally rejected claims 1-33 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,559,250 B2 to Ro et al. (hereinafter "Ro"). Claims 1-6 have been cancelled without prejudice. Ro does not appear to teach or suggest all of the features of claims 7-35 of the present application. For example, Ro does not appear to teach or suggest "preparing a second solution by reacting ... and a boron compound having an alkoxy group". Ro does not appear to teach or suggest at least the above quoted feature in combination with the other features of the claims. Applicant requests removal of the double patenting rejection of the claims in light of Ro.

The Examiner provisionally rejected claims 7-33 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of co-pending Application No. 10/399,193 to Yang et al. (hereinafter "Yang '193"). Applicant respectfully disagrees that the claims are obvious in light of Yang '193.

Claims 7-35 describe a combination of features, including: "preparing a second solution by reacting the magnesium compound solution with an ester compound comprising at least one hydroxy group and a boron compound comprising at least one alkoxy group". Yang '193 appears to teach or suggest "reacting the magnesium solution with an ester compound having at least one hydroxyl group and a silicon compound having an alkoxy group to produce a magnesium

composition solution" (see e.g., claim 1 of Yang '193). Yang '193 does not appear to teach or suggest at least the above quoted feature of claims 7-35, in combination with the other features of the claims. The claims of the present application include features such as the type of electron donor, point of time the silicon compound is added, and the compound used when titanium is reacted with the carrier, that do not appear to be taught or suggested by Yang '193. Applicant requests removal of the double patenting rejection of the claims in light of Yang '193.

F. Additional Comments

Applicant submits that all claims are in condition for allowance. Favorable reconsideration is respectfully requested.

Applicant believes no fees are due with the filing of this document. If an extension of time is required, Applicant hereby requests the appropriate extension of time. If fees are required or if any fees have been overpaid, please appropriately charge or credit those fees to Meyertons, Hood, Kivlin, Kowert & Goetzl, P.C. Deposit Account Number 50-1505/5333-02400/EBM.

Respectfully submitted,

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